

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) A composite osteoimplant, comprising:
a polymer, wherein the polymer is selected from the group consisting of starch poly(caprolactone), poly(caprolactone), poly(l-lactide), poly(dl-lactide-co-glycolide), poly(l-lactide-co-dl-lactide), enantiomers of the above, co-polymers of the above, and mixtures of the above; and
~~bone-derived particles, particles;~~ wherein the composite is ~~adapted and constructed to be formable~~ during implantation or immediately prior to implantation and ~~to be set~~ is settable under predetermined suitable conditions; and wherein the composite is not formable at about 37°C, and wherein the composite becomes formable when heated to a temperature greater than about 40°C.
- 2-3. (Canceled)
4. (Original) The osteoimplant of claim 3, wherein the composite becomes formable when heated to a temperature greater than about 45°C.
5. (Original) The osteoimplant of claim 4, wherein the composite becomes formable when heated to a temperature greater than about 50°C.
6. (Original) The osteoimplant of claim 5, wherein the composite becomes formable when heated to a temperature greater than about 55°C.
7. (Original) The osteoimplant of claim 6, wherein the composite becomes formable when heated to a temperature greater than about 60°C.
8. (Original) The osteoimplant of claim 7, wherein the composite becomes formable when heated to a temperature greater than about 70°C.

9. (Original) The osteoimplant of claim 8, wherein the composite becomes formable when heated to a temperature greater than about 80°C.
10. (Original) The osteoimplant of claim 9, wherein the composite becomes formable when heated to a temperature greater than about 90°C.
11. (Original) The osteoimplant of claim 1, wherein the composite is set by increasing the cross-link density of the polymer component.
12. (Original) The osteoimplant of claim 1, wherein the composite further comprises a monomer, the composite becoming set when the monomer is covalently incorporated into the polymer.
13. (Currently amended) The osteoimplant of claim 1, wherein the composite further comprises at least one member selected from the group consisting of bone marrow, a ~~biomolecule~~ biomolecules, a ~~small molecule~~ small molecules, a ~~bioactive agent~~ bioactive agents, calcium phosphate, calcium carbonate, and cells.
14. (Currently amended) The osteoimplant of ~~claim 13~~ claim 1, wherein the composite further comprises at least one member selected from the group consisting of ~~[[a]]nucleic acid vector, vectors,~~ mesenchymal stem cells, osteoblasts, osteoclasts, and fibroblasts.
15. (Original) The osteoimplant of claim 14, wherein the nucleic acid vector, when introduced into a cell, increases the cell's production of bone morphogenetic proteins.
16. (Currently amended) The osteoimplant of claim 1, wherein the osteoimplant is ~~adapted and constructed to be~~ capable of being irrigated following implantation without substantially changing its shape.
17. (Original) The osteoimplant of claim 1, wherein the bone-derived particles are selected from the group consisting of nondemineralized bone particles, partially demineralized bone particles, superficially demineralized bone particles, fully demineralized bone particles and mixtures thereof.

18. (Original) The osteoimplant of claim 1, wherein the bone-derived particles are obtained from a member of the group consisting of cortical bone, cancellous bone, cortico-cancellous bone, and mixtures thereof.
19. (Original) The osteoimplant of claim 1, wherein the bone-derived particles are obtained from a member of the group consisting of autogenous bone, allogenic bone, xenogeneic bone, transgenic bone, and mixtures thereof.
20. (Original) The osteoimplant of claim 1, wherein the bone-derived particles are about 10% to about 99% by weight of the composite.
21. (Original) The osteoimplant of claim 20, wherein the bone-derived particles are about 25% to about 50% by weight of the composite.
22. (Currently amended) The osteoimplant of claim 1, wherein a surface of the bone-derived particles is modified with ~~a member of~~ at least one member selected from the group consisting of a biomolecule-biomolecules, a small molecule-small molecules, a bioactive agent-bioactive agents, [[a]] non-biologically active material-materials, and any combination of the above.
23. (Original) The osteoimplant of claim 22, wherein the member is linked to the surface by a coupling agent.
24. (Original) The osteoimplant of claim 1, wherein at least a portion of the bone-derived particles are covalently linked to one another.
25. (Original) The osteoimplant of claim 1, wherein collagen fibers at the surface of the bone-derived particles are exposed.
26. (Original) The osteoimplant of claim 25, wherein the exposed collagen fibers are partially or fully separated from one another.
27. (Currently amended) The osteoimplant of claim 25, wherein the exposed collagen fibers are derivatized with a moiety selected from the group consisting of ~~a biomolecule~~

biomolecules, ~~a small molecule~~ small molecules, ~~a bioactive agent~~ bioactive agents, ~~[[a]]~~
non-biologically active ~~material~~ materials, and any combination of the above.

28. (Canceled)

29. (Currently amended) The osteoimplant of ~~claim 25~~ claim 1, wherein the polymer
~~comprises poly(caprolactone).~~ is selected from the group consisting of starch
~~poly(caprolactone), poly(caprolactone), poly(L-lactide), poly(DL-lactide-co-glycolide),~~
~~poly(L-lactide-co-DL-lactide), enantiomers of the above, co-polymers of the above, and~~
~~mixtures of the above.~~

30. (Canceled)

31. (Original) The osteoimplant of claim 1, wherein the bone derived particles and
the polymer are linked with a coupling agent.

32. (Currently amended) The osteoimplant of claim 1, wherein the osteoimplant has
a shape selected from the group consisting of ~~[[a]]~~ bone, a section of a bone, sheet, plate,
particle, sphere, hemisphere strand, coiled strand, capillary network, film, fiber, mesh,
disk, cone, portion of a cone, pin, screw, tube, cup, tooth, tooth root, strut, wedge, portion
of wedge, cylinder, threaded cylinder, rod, hinge, rivet, anchor, spheroid, ellipsoid, oblate
spheroid, prolate ellipsoid, ~~or~~ and hyperbolic paraboloid.

33. (Original) The osteoimplant of claim 1, wherein the osteoimplant comprises a
plurality of pieces of composite, wherein the pieces are joined together.

34. (Currently amended) The osteoimplant of claim 33, wherein the pieces are joined
together with a member selected from the group consisting of ~~an adhesive~~ adhesives, a
~~mechanical fastener~~ mechanical fasteners, ultrasonic bonding, and any combination of the
above.

35. (Original) The osteoimplant of claim 1, wherein the composite is adapted and
constructed to be formed in a mold.

36. (Currently amended) The osteoimplant of claim 1, wherein the distribution of bone-derived particles within the composite is not uniform with respect to a member of the group consisting of volume fraction, size, density, shape, size distribution, and any combination of the above.

37. (Original) The osteoimplant of claim 1, wherein at least a portion of the bone-derived particles in the composite are elongate, and wherein an arrangement of bone-derived particles in the composite is isotropic or anisotropic.

38. (Original) The osteoimplant of claim 1, wherein at least a portion of the bone-derived particles in the composite are elongate, and wherein a relative alignment of bone-derived particles in a first portion of the composite is different than the relative alignment of bone-derived particles in a second portion of the composite.

39-121. (Canceled)